

REMARKS

Interview Summary

The applicant thanks the Examiner for the preliminary interview conducted on December 18, 2007. The applicant provided an overview of the currently cited prior art and a summary of the differences from the present invention.

In particular, the undersigned described the primary difference between the subject process and that taught by Krish being that in the present case the anchoring adhesive is first allowed to gel or cure, and then the bonding adhesive is applied wet to bond the substrates. This allows the bonding adhesive – which is selected for its high adherence to the second material – to also adhere strongly to the first material despite inherent low-adhesion relative to the first material. On the other hand, Krish cures or dries all adhesive surfaces before adhering the composite adhesive to the second material, creating a composite adhesive “release” layer that has properties of both adhesives.

The undersigned distinguished Booth *et al.* on the basis that, although the previous Examiner characterized Booth *et al.* as teaching an anchoring adhesive (insulative adhesive 2) applied to a first material (substrate 1) leaving a plurality of substantially isolated adhesive anchors separated by interstitial spaces (referencing Figs 2 to 4 and column 3, lines 10 to 14), rather than creating “a plurality of substantially isolated adhesive anchors separated by interstitial spaces,” Booth *et al.* actually creates (by drilling) a series of holes surrounded by insulative adhesive. This has nothing to do with the present invention, it is in fact the opposite – Booth *et al.* creates a plurality of spaces surrounded by adhesive. The present invention teaches a plurality of adhesive projections or “anchors” surrounded by spaces. Booth *et al.*'s patent is directed to a method of direct chip attachment (for IC and other similar chips) using electrically conductive adhesives, and his objective and resulting structure is completely different from the object of the subject invention.

Lack of Support and Indefiniteness Objections

The applicant has amended claims 1 and 11 as suggested by the previous Examiner, to overcome all objections based on lack of support in the disclosure for the previous amendments and indefiniteness in respect of those same amendments.

However, the applicant submits that the claims are allowable over the cited prior art.

The Claims Are Patentable Over Prior Art

The Examiner has maintained the rejection of pending claims 1, 5-7, 11 and 15-16 as lacking novelty in view of Krish *et al.* and Booth *et al.*

The Applicant respectfully submits that the claims as presented herein are novel and patentably distinguishable from the cited prior art. As noted previously, the claimed invention teaches a method of adhering a first material to a second material in which a bonding adhesive intrudes into the interstitial spaces and bonds to adhesive anchors formed by an anchoring adhesive, thereby improving adhesion of the bonding adhesive to the first and/or second materials. In the claimed invention, an anchoring adhesive selected for its ability to adhere to a material that provides a poor adhesive interface for the bonding adhesive of choice, is applied to the adhesion zone and creates a plurality of substantially isolated adhesive anchors distributed over the adhesion zone. The anchoring adhesive serves to anchor the bonding agent to the material.

By forming adhesive anchors the invention improves bonding of the first material to the second material, or in the case of a casting adhesive improves bonding of the first material to the casting adhesive, by adding physical and chemical bonding sites to the adhesion zone. This allows the adhesive of choice to be used as a bonding adhesive to bond the materials without sacrificing the quality or durability of the finished product. Furthermore, in the case of a product that needs to be flexible, this allows the finished product to retain its flexibility even if a rigid adhesive is the best choice for adherence purposes, because after the adhesive has cured the product can still flex along the interstitial spacing, as described further below.

In the present case the anchoring adhesive – which is selected for its high adherence to the *first* material – is first allowed to cure, i.e. to solidify to a point at which it forms a plurality of physical and chemical bonding sites within the adhesion zone, and *then* the bonding adhesive is applied before curing. This allows the bonding adhesive – which is selected for its high adherence to the *second* material – to also adhere strongly to the first material (because of its high adhesion to the adhesive anchors) despite inherent low-adhesion relative to the first material. This is a substantial difference from Krish *et al.*, who (as noted in the interview summary) cures or dries all adhesive surfaces before adhering the composite adhesive to the

second material, creating a composite adhesive “release” layer that has properties of both adhesives.

Another important advantage of the invention, briefly touched on above, is described in the disclosure at paragraph 4: In some cases it may be desirable or essential to maintain the flexibility of the finished product where a flexible material is adhered to another material, but the most suitable adhesive is not flexible. To retain flexibility in the finished product may require the use of a flexible adhesive that does not adhere well to one or both of the substrates, which can result in products of poor quality and/or low durability. A rigid adhesive might have a higher adhesion strength, but its use would reduce or substantially eliminate the flexibility of the finished product. In a case such as this, the ability to use a strong anchoring adhesive in a pattern of *isolated adhesive anchors* permits the flexibility of the finished product to be maintained while providing the strong bond required for a quality product.

Krish *et al.* does not teach or suggest creating a plurality of substantially isolated adhesive anchors for the purpose of improving adhesion with a second (bonding) adhesive to then adhere the first and second materials together. Moreover, Krish *et al.* cures or dries all adhesive surfaces before adhering the composite adhesive to the second material (see for example column 25, lines 18 to 30), creating a composite adhesive “release” layer that has properties of both adhesives.

The previous Examiner had indicated that to support this distinction the claims need to recite that the first adhesive is dry before the second is applied, and that the second adhesive is applied wet to both materials. The claims do in fact recite “after the adhesive anchors have cured to form a plurality of physical and chemical bonding sites within the adhesion zone, applying a bonding adhesive to the first material or to the second material or to both before the bonding adhesive has cured” (claim 1) and “after the adhesive anchors have cured to form a plurality of physical and chemical bonding sites within the adhesion zone, applying a casting adhesive to the material before the casting adhesive has cured” (claim 11). Accordingly, the rejection of the claims under 35 USC 102 is clearly incorrect; moreover, there would be no motivation for a person of ordinary skill in the art to do this, because his objective of creating a composite release adhesive having properties of both component adhesive has nothing to do with the present invention.

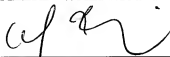
As noted above in the interview summary, Booth is directed to a method of direct chip attachment (for IC and other similar chips) using electrically conductive adhesives. His objective and resulting structure is also completely different from the object of the subject invention. In fact, Booth creates (by drilling) a series of holes surrounded by insulative adhesive, which results in a structure that is contrary to the present invention—a plurality of spaces surrounded by adhesive. The applicant submits that this patent is not relevant to the present invention and it does not provide the same advantages. Apart from all other differences, if a rigid adhesive were required for the “adhesive anchors” in Booth it could not be used on a flexible product because the finished product would lose its flexibility.

The Applicant accordingly submits that main claims as amended are patentable over Krish *et al.* and Booth *et al.* Favourable reconsideration and allowance of this application are requested.

This response is accompanied by a Petition for a two month extension of time. The Commissioner is authorized to charge any required fees, including the RCE fee set forth in 37 CFR 1.17(e), to our Deposit Account No. 500663.

Executed at Toronto, Ontario, Canada, on January 21, 2008.

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